CHAPTER 3

The physician and clinical nutrition—is there a need for specialization?

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Clinical nutrition is required as a specialty in medical practice, but is most applicable in day-to-day primary care medicine. At the primary, secondary or tertiary level of medical care it has preventive, diagnostic and management applications. The new emphasis by WHO on hospitals or tertiary care institutions as vehicles for health promotion underscores this range of possibilities.

The rationale for clinical nutrition as a specialty includes that it should:

(1) be a resource for primary health care,
(2) engage in research and development,
(3) be multi-disciplinary,
(4) provide methodological resources (food intake, food, compositional and various laboratory investigations) and
(5) address the difficult, complex nutritionally-related health problems.

Training and the pursuit of professionalism in clinical nutrition are particular needs. The future will see improved clinical decision making when nutritional factors are taken into account, the linkage of nutrition and molecular biology, the definition of dietary tolerance as part of biological reserve, and greater prospects for reduction of nutritionally-related non-communicable and communicable diseases.

Introduction

It is sometimes thought that clinical nutrition must inevitably be a specialty in its own right and located most identifiably in the tertiary health care sector. This is no more the case than that there is an exclusive location of internal medicine or surgery in the tertiary health care sector. The reality is that, both in developing and developed countries, most of the opportunities for interaction between medical graduates and the public on nutritional matters occur in Primary health care delivery.

In a country like Australia, with a relatively high ratio of doctors to numbers of population, between 70 and 80% of the community encounter a doctor professionally each year thus, not only is it possible for doctors to be responsive to nutritional needs

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identified by patients, but also to be the agents for effective change in the prevalence of nutritionally related disease in the community at large, through one-to-one counselling.

The concept of Preventive nutrition in medical practice is an important one, considered as complementary to the process of nutritional diagnosis and management. It is also not confined to primary, general or family medicine, but is an option in secondary health care (such as the care of the sick in the community and in low intensity hospital and institutional settings) and, increasingly, in the tertiary hospital sector. The World Health Organization (WHO) has recently developed a charter and been involved in the Sundsvall declaration 'health promoting hospitals'[39,40]. The principal aims set out in the charter are these:

Beyond the assurance of good quality medical services and health care, a Health Promoting Hospital should:

1. Provide opportunities throughout the hospital to develop health-oriented perspectives, objectives and structures.
2. Develop a common corporate identify within the hospital which embraces the aims of the Health Promoting Hospital.
3. Raise awareness of the impact of the environment of the hospital on the health of patients, staff and community. The physical environment of hospital buildings should support, maintain and improve the healing process.
4. Encourage an active and participatory role for patients according to their specific health potentials.
5. Encourage participatory, health-gain orientated procedures throughout the hospital.
6. Create healthy working conditions for all hospital staff.
7. Strive to make the Health Promoting Hospital a model for healthy services and workplaces.
8. Maintain and promote collaboration between community based health promotion initiatives and local governments.
9. Improve communication and collaboration with existing social and health services in the community.
10. Improve the range of support given to patients and their relatives by the hospital through community based social and health services and/or volunteer groups and organizations.
11. Identify and acknowledge specific target groups (eg age, duration of illness etc) within the hospital and their specific health needs.
12. Acknowledge differences in value sets, needs and cultural conditions for individuals and different population groups.
13. Create supportive, humane and stimulating living environments within the hospital especially for long-term and chronic patients.
14. Improve the health promoting quality and the variety of food services in hospitals for patients and personnel.
15. Enhance the provision and quality of information, communication and educational programmes and skill training for patients and relatives.
16. Enhance the provision and quality of educational programmes and skill training for staff.
17. Develop in the hospital an epidemiological database specially related to the prevention of illness and injury and communicate this information to public policy makers and to the other institutions in the community.

In 1990, Australia formed a National Committee on Health Promoting Hospitals as well, now with its own charter. Nutrition is emerging as a key issue by way of opportunities to increase the Plane of energy balance ('more in and more out') and to increase the nutritional quality of the food available in hospitals, for patients, staff and visitors. For these purposes, tertiary health care institutions are also becoming more active with the communities in which they are located through outreach, networking and shared care arrangements.

Additionally, the tertiary hospitals provide a base for new developments and training. Insofar as they are university teaching hospitals, the wider university resource can also be brought to bear on clinical nutrition.

The question is what actually constitutes a specialty and how does this apply to the field of clinical nutrition?[33]. At the very least, this implies formalized and in-depth training for at least some medical graduates. It also does not imply that the strength of clinical nutrition will be solely dependent on the work of medical graduates, as important as this. It will be underpinned by collaboration with human nutrition scientists and with those in other health care professions, such as nursing, physical education, physiotherapy, occupational therapy and dietetics[2].

Recognition of such a specialty by traditional medical colleges and boards (those in internal medicine and surgery, for example) must be important for any such specialty development. Specific training exists, at least, in the United States, in Sweden and in Australia. Clinical nutrition is a sub-specialty development and part of advanced training for the Royal Australasian College of Physicians: this does not preclude combined training with other sub-specialties or with general internal medicine.

Rationale for clinical nutrition as a specialty

A raison d'être requires greater development for Clinical nutrition than in many another specialty[10,37]. The fully developed specialty will embrace nutritional assessment, nutritional diagnosis and nutritional management.

A Resource for primary health care

Developments in primary health care, amongst general and family medical practitioners, are particularly contingent on an educational and advisory Process being available from specialist colleagues. This may be conducted through ongoing education in a formal sense, by the use of consultants with clinical nutrition expertise, especially those who contribute to postgraduate literature, and, especially, through the correspondence from consultants. It is very difficult for new developments to be reflected in primary care medicine unless there is specialist back-up. The corollary, however, is that most clinical nutrition activities ought to remain firmly within the primary sector rather than be culled out for specialist attention. One of the great strengths of primary health care for clinical nutrition is that the integration and prioritizing of nutritional advice can take place when the context may be quite broad.

Not only, of course, is the specialist clinical nutritionist a resource for general practitioners, but the linkage is a stimulus for development in the tertiary arena.

Research and development

There are few fields of medicine undergoing a more rapid resurgence than clinical nutrition at present. This has happened just in time, since there were also rapid and parallel developments in what could be termed the 'fringe medical practice of nutrition' which was beginning to go by the same nomenclature of 'clinical nutrition' or 'medical

nutrition'. Securing the growing interest in nutrition in medical practice for those who would practice it in a scientifically sound fashion, has been most important. To keep this process alive, it will be important for clinical nutrition research and development programmes to be part of most, if not all, tertiary or university teaching hospitals. These need not always be stand-alone, and they can be productively part of larger and more traditional clinical departments. Such is the case in my own department of medicine, where there is a thriving nutrition research group. There are similar developments in other departments of medicine in Australian medical schools, notably at the University of Western Australia, University of Melbourne, University of Sydney, Newcastle University, University of Queensland and Flinders University.

Multi-disciplinary interaction

Clinical nutrition itself is a multi-disciplinary pursuit. It is not organ or system based like the various sub-specialties of gastroenterology, endocrinology, cardiovascular medicine, neurology and respiratory medicine. It is more like oncology, which deals with a particular way in which disease can develop and the implications for management; clinical immunology, which also deals with particular kinds of disease processes; and even diabetes which is a prototype for multi-disciplinary care. Clinical nutrition does, however, have a responsibility to be interactive with each of the organ-based specialties.

There are now good examples of how a fresh look at food–health relationships is changing the face of these disciplines. Examples would be peptic ulcer disease and nutritional factors which might influence *Helicobacter pylori* infestation in the upper gut[5,9,11,13,17,18], the nutritional factors which alter the colonic micro environment and propensity to large bowel cancer[7,22] the broader sweep of nutritional factors which operate to alter risk of atherosclerotic vascular disease, not only through lipoproteins but also through blood pressure, platelet function, proneness to arrythmia and abdominal fatness[26]; the many nutritional factors which interact with other lifestyle factors in the pathogenesis of osteoporosis[27]; and nutritional factors which may modulate motor function in parkinsonism[14] and the dampening or avoidance of motion sickness by particular foods like ginger[25]; the radical change in nutritional management of diabetes[23] and the uncertainty of which environmental factors are allowing the increased incidence of insulin-dependent diabetes[34].

As a matter of fact, we are finding that new clinical programmes with a nutritional emphasis are now emerging under the auspices of clinical nutrition. Examples are 'osteoporosis assessment', 'eating and body compositional disorders', 'inherited and metabolic disorders in adulthood', and 'the use of medical foods in nutritional support for wasting and other disorders'.

Provision of methodological resources

No clinical specialty can be without its stable of methodology[24]. Most crucial in the nutritional field is an ability to reliably assess food intake and to express it as food indices as well as nutrient intakes[1,16,32]. For example, food variety scores are readily accessible in clinical practice and have predictive power for non-communicable disease[35], (see Table 1). The table shows how, the wider the variety of food, assessed on the basis of biological difference, or of difference in food technology and food preparation as well, the less the coronary risk, in this case in Chinese women.

Clinical nutrition units are now also seeing a particular role for development, standardization and application of body compositional techniques. The range of these is from anthropometry, to electrical conductivity methods (impedance), to dual energy X-

Table 1. Food variety as a determinant of cardiovascular risk in Melbourne Chinese Women (48).

	"Biological variety"			"Product variety"		
	b	(se)	p	b	(se)	p
SBP (mmHg)	–0.49	(0.12)	****	–0.41	(0.10)	****
DBP (mmHg)	–0.069	(0.059)	NS	–0.052	(0.048)	NS
CHOL (mmol/l)	–0.015	(0.0064)	*	–0.014	(0.0052)	**
TRIG (mmol/l)	–0.0093	(0.0045)	*	–0.0077	(0.0037)	*
HDLC (mmol/l)	0.0041	(0.0021)	NS	0.0031	(0.0017)	NS
LDLC (mmol/l)	–0.014	(0.0058)	*	–0.013	(0.0047)	**
LDL/HDLC	–0.017	(0.0052)	**	–0.015	(0.0042)	***
BMI (kg/m^2)	–0.027	(0.018)	NS	–0.036	(0.014)	*
Waist to ratio	–0.0015	(0.00043)	***	–0.0012	(0.00035)	****
Fasting glucose (mmol/l)	–0.025	(0.0086)	**	–0.020	(0.0070)	**

NS, not significant; *P<0.05; **P<0.01; ***P<0.001; ****P<0.0001. From[32].

ray absorptiometry (DEXA), whole body counting (K^{40}), and in-vivo neutron activation analysis[19,20,28,36].

Nutritional biochemistry, haematology and, increasingly, immunology are mainstay laboratory methodologies. Increasing evidence for the partial reversal of immunodeficiency in, for example, the aged provide an even greater impetus for the development of clinical nutrition methodology[3].

Ultimately, the methodologies must result in improved nutrition support, be it oral, enteral or parenteral.

Diagnosis and management of difficult, complex, nutritionally related health problems

A good deal of complexity insofar as nutritional contributing factors are concerned, is seen in inherited disorders of metabolism, eating disorders, wasting disorders and food sensitivities.

One of the issues that rekindled interest in clinical nutrition was the under-appreciation of protein-energy malnutrition (PEM) in hospital settings[15]. One of the reasons for the development of patient-based instruction in clinical nutrition is to raise the consciousness of medical graduates to nutrition as an explanatory model for clinical problems[38]. Once nutritional diagnoses are made, more opportunity for nutritional management is seen.

Training in clinical nutrition

It cannot be stated how important role models are for the practice of clinical nutrition if undergraduates and Postgraduates are to be inspired in this direction, whether as an integral part of a number of areas of medical practice or as a specialty development. Experience would dictate that one of the best role models is provided by clinicians who apply appropriately selective nutritional assessment and nutritional management as part of an overall repertoire for patient care, especially in broadly based clinical settings.

Another powerful instrument for the encouragement of clinical nutrition practice is when it regularly appears in ongoing education programmes for medical practitioners.

Training in clinical nutrition can, of course, be distinctive and separate or, more commonly, be a part of Programs in the other maior disciplines of medicine, including internal medicine (adult and paediatric), surgery, psychological medicine, women's health (obstetrics and gynaecology) and laboratory medicine[33].

For the specialty itself, its utility in medical practice needs to be clearly understood and career structures provided for hospital medical staff and for medical practitioners in various branches of community, specialty and public health practice.

Professionalization in clinical nutrition

The professionalization of clinical nutrition is clearly in evidence through its journal base. There are now clinical nutrition journals for major regions of the world, including the *American Journal of Clinical Nutrition*, the *European Journal of Clinical Nutrition* and the new *Asia Pacific Journal of Clinical Nutrition*. There are journals of nutrition support and there are those that deal with particular sections of clinical nutrition practice like obesity and cancer.

A number of texts on clinical nutrition are also now available[1,4,6,15,21,29,30]. Some of the texts relate specifically to age groups[1]. An example of a Manual is Patient problems in clinical nutrition[38].

Societies of clinical nutrition are also becoming more active. In North America these include The American Society of Clinical Nutrition and the American College of Nutrition. In Australasia there is the Australasian Clinical Nutrition Society.

Also encouraging has been the development of an international series of clinical nutrition meetings, The International Symposia on Clinical Nutrition under the auspices of The International Union of Nutritional Sciences, meeting every four years. Much more established have been the societies and meetings which have to do with enteral and parenteral nutrition. There are also numerous societies and meetings which attend to clinical nutrition matters like those of obesity, atherosclerosis, diabetes and osteoporosis.

Future prospects

The future prospects of clinical nutrition must be bright and include:

1. The consideration of nutritional problems as part of usual clinical decision making.
2. The better understanding and application of nutritional factors which affect genetic expression.
3. The definition of dietary tolerance as part of biological reserve and better understanding of the value or otherwise of nutritional change in individuals and communities.
4. Reduction in nutritionally related non communicable and communicable diseases.

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